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ABSTRACT

The article describes a pilot program to encourage independent communication in seven nonverbal children (ages 6-8) with orthopedic and/or neurological involvement or cerebral palsy. Transdisciplinary team members included the classroom teacher, speech clinician, instructional aide, computer resource person, occupational therapist, physical therapist, principal, and parents. Frequent team meetings allowed ongoing evaluation of student performance, cohesive development of individualized education programs, integration of academic and therapy goals, and formation of instructional strategies. Strategies used to facilitate academic skill development (e.g., use of multi-mode systems, individualization of language boards) and social interaction skills (e.g., modeling, field trips, interaction with peers from other classrooms) are described. The high degree of instructor time involved in preparing the communication system(s) and all aspects of individualized daily classroom instruction were noted. Modern technology was viewed as augmenting what the teacher does, but not as a panacea for educating nonverbal children. It was concluded that innovative strategies, teacher flexibility, transdisciplinary teaming, staff familiarity, and peer exposure to communication systems collectively improve the education of nonverbal children. (JW)

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# Educating the Non-Verbal Child
# A Transdisciplinary Approach

By: Sherry Watkins, Susan White, Anne-Marie Barry, Cecilia Healy, Rebecca Burch and Suzy Edelston

Traditionally, the non-verbal child has been relegated to a passive role in communication in both academic and social settings with little opportunity to express him/her self spontaneously. Educators' recognition of non-verbal students needs, parental concern and Fairfax County's committment to provide appropriate education facilitated the development of a pilot program to encourage independent communication.

Seven non-verbal children, placed in the Physically Handicapped Self-Contained program (which was housed in a general education elementary school) participated in the pilot. They were of a common age group (6-8 years) and were identified as having communication deficits which severely restricted their participation in the classroom. Handicapping conditions which affected their expressive communication included: three children with orthopaedic and/or unspecified neurological involvement (two of whom were hearing impaired) and four children with severe cerebral palsy.

Prior to the pilot, the children were identified and monitored by the Fairfax County Assistive Device and Instructional Technology (ADIT) team. The ADIT team determined the appropriate augmentative system(s) on which to evaluate and train the children. These systems could include one or more of the following: Simple language board, E-tran, signed English, gesture, and/or automated device. If the ADIT team identified the need for an automated device, the County would provide one for in-school evaluation and training. Each of the children in the pilot program had received individual training with the speech clinician on the use of a non-automated communication system.

In order to enhance the pilot program, Fairfax County's Department of Student Services and Special Education provided equipment, personnel and

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administrative support. Two Apple IIe computer systems, an Adaptive Firmware Card, various interfacing devices (expanded keyboard, switches, Muppet Learning Keys, Touch Window, etc.) and software were made available. A transdisciplinary team was identified from in-house personnel with special consideration to those professionals who had an interest in this population.

Transdisciplinary teams are not a new concept in education, however, our team was unique in that we had a variety of professionals from educational, medical and technological backgrounds who were in daily contact on an informal basis and weekly on a more formal basis via team meetings. This sharing of expertise provided a holistic approach to evaluating and educating the children. Although each professional contributed his/her expertise to the team, there in fact was overlapping and sharing of the specialized roles and responsibilities. This team consisted of a classroom teacher, speech clinician, instructional aide, computer resource person, occupational therapist, physical therapist, Center principal and parents.

Teachers typically presented information in a didactic manner and relied on "yes/no" responses from non-verbal children. The speech clinician was the person responsible for developing, training and implementing the use of communication system(s). Frequently the child did not use the communication system in the classroom because of the class constraints and/or teacher unfamiliarity with the systems. Therefore, the instructional role was shared by the classroom teacher and the speech clinician.

Daily lesson plans reflected the partnership of the speech clinician and the classroom teacher. They met daily to plan specific activities and to evaluate student responsiveness. The teacher, responsible for the County curriculum and academic goals of the I.E.P., provided instruction as well as subject matter expertise to enhance learning. The speech clincian, as a specialist in language development and communication systems, provided student instruction and modeling techniques for the teacher. She spent the morning in the pilot classroom and her afternoons providing direct therapy.

An instructional aide, assigned to the teacher, assisted in the construction of customized augmentative communication materials. She

also assisted in the classroom instruction and conducted small groups.

An in-house teacher, with training in educational technology, served as a computer resource person for the teacher and as an evaluator of students' performance with various pieces of hardware and software. She worked with the therapists to select and develop switch mountings and to implement assistive devices. She also evaluated and adapted software to enable these students to access commercial software programs. A very important and time consuming component of this teacher's role was the daily set-up and maintenance of the computers.

The occupational therapist evaluated, identified and provided individualized instruction in the areas of fine motor and perception. Approximately 50% of direct treatment time was carried out in the classroom. This was done so as to minimize fragmentation of the student's day and allowed other team members to observe and benefit from techniques used to compensate for the student's deficits.

The primary responsibility of the physical therapist was to provide direct therapy to the students to normalize muscle tone and to improve their positions for optimum classroom performance. The physical therapist served as a consultant to the classroom teacher regarding the use of reflex inhibiting or facilitating positions in the classroom to enhance learning. An additional duty was to serve as a resource for appropriate rehabilitative positioning equipment and technology to maximize student performance.

The center principal provided administrative support and guidance. Parents participated by attending inservices designed to facilitate carry over of communication skills into the home.

Frequent team meetings provided an opportunity for:

* ongoing evaluation of student performance.

* cohesive development of I.E.P.'s.

* integration of academic and therapy goals.

* formation of instructional strategies.

Although each team member provided specific skills to the entire team, the roles were constantly being evaluated and redefined, particularly between the classroom teacher and the speech clinician.

The curriculum for the class was developed to meet the students' communication needs in an academic and social environment. The immediate need was to develop a functional communication system for classroom use, individualize it and reinforce its use. In order to combine expressive communication skills with the academic program, innovative instructional strategies were designed. Strategies used to facilitate academic skill development included:

* the use of visual, tactile and kinestetic senses (which increases the child's retention of new information) via augmentative systems.

* the rotation of students through classroom centers in order to reinforce new skills in a variety of ways ie., computer, augmentative communication, traditional techniques, etc.

* the designing of lesson plans to accomodate the necessary time to allow students to use their augmentative systems.

* the presentation of new information through multi-mode systems such as verbalizations, signed English, language boards, automated devices and computers.

* the use of enlarged master language boards with student-sized individual boards for unit lessons.

* the individualization of language boards accounting for physical abilities (lay-out of board, means of accessing) academic needs, social/functional needs.

* the utilization of professionals in a variety of fields (ie., speech & language, reading, behavior modification, computer technology).

* the utilization of parent knowledge and volunteer tutoring

time.

* the development of language boards to coincide with the curriculum (reading, language arts, math, social studies, science and health).

* daily informal meetings between speech clincian and teacher to plan and assess the daily program.

* the reduction of the speech clincian's caseload to allow her the time to better meet the severe communication needs presented by these students.

* frequent field trips to reinforce academic lessons through the use of communication systems in a functional environement.

* the utilization of individual communication systems to participate in school functions such as plays.

With the development of functional communication systems(s), social interaction skills were also addressed. Strategies used to facilitate the development of social interaction skills included:

* modeling of structured social situations by staff members.

* designing activities to provide social interaction with classroom peers.

* providing opportunities to practice social skills with peers from other classrooms.

* providing field trip experiences to reinforce social skills outside of school.

* educating able-bodied peers about communication systems.

* providing parellel activities to evaluate spontaneous interactions.

* structuring small group activities with able-bodied peers to

practice interactions.

* providing opportunities and/or activities for spontaneous interaction with all peers.

* participating in total school functions (assemblies) utilizing communication systems.

Educating non-verbal students requires a creative approach and a willingness to deviate from standard teaching methodologies.

Although the primary emphasis of the pilot program was to provide an opportunity for non-verbal children to become active independent communicators, there were secondary benefits which taught us, the staff, how to address the multiplicity of needs when working with this population.

The children demonstrated improved proficiency with the daily utilization of a communication system(s). Their pragmatic interaction and intent language skills, verbalization and ability to impart knowledge also improved. An additional benefit was the positive attitudinal change in the children, staff and parents toward the use of augmentative communication systems.

A major factor affecting all areas of instruction was the time component. An inordinate amount of instructor time was needed to prepare the communication system(s) and classroom instruction. This involved the planning, construction, adaption, programming and presenting of all curriculum content. The children themselves required additional time. The average verbal individual speaks 150-175 words per minute. When an augmentative system is substituted, the expressive communication rate decreases to 25 words per minute. Therefore, in order to allow the children the time to express themselves, expectations of the amount of material presented and evaluated, within a given time period, had to be adjusted. In addition, the children's multiplicity of needs and their scattered skills necessitated frequent 1:1 teaching. The time factor and its impact on staff and students should be considered in planning for the academic program. Consultative therapeutic intervention and/or equipment maintenance time should also be addressed.

In summary, one may perceive that today's modern technology would make classroom instruction easier and student's progress faster. However, the technology only augments what the teacher does and cannot be viewed as a panacea for educating non-verbal children. Innovative strategies, teacher flexibility, transdisciplinary teaming, staff familiarity and peer exposure to communication systems collectively improve the education of non-verbal children.

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